WEATHER CONDITIONS OVER THE NORTH ATLANTIC OCEAN DURING APRIL, 1916.

The data furnished are for April, 1916; comparison and study of the same should be in connection with those appearing in the REVIEW for that month. Chart IX (XLV–41) shows for April, 1916, the averages of pressure, temperature, and prevailing direction of the wind at 7 a. m., 75th meridian time (Greenwich mean noon), together with notes on the locations and courses of the more severe storms of the month.

PRESSURE.

The distribution of the average monthly pressure for April, 1916, as shown on Chart IX, was, in most respects, similar to the normal. The North Atlantic, or Azores HIGH, was slightly north of its usual position, and nearly normal in intensity, while a second HIGH, with a crest of 30.05 inches and of limited area, was central near Birmingham, Ala. The southern portion of the Icelandic LOW was plainly shown by an isobar of 29.70 inches that extended from the south coast of Iceland toward the south and east. There was also a shallow area of low pressure central near latitude 45° N., longitude 55° W., where the average barometer reading was 29.81 inches. The lowest average monthly pressure reading for any one 5° square was 29.67 inches, and occurred in the square between latitudes 60°–65° N., longitudes 5°–10° W., where the lowest individual reading was 29 inches, on the 12th, and the highest 30.28 inches, on the 26th. The highest average pressure was 30.23 inches, in each of the two squares between latitudes 40°–45°, longitudes 20°–30°, where the lowest reading was 29.79 inches, on the 30th, and the highest 30.62 inches, on the 11th. While the pressure changes from day to day were marked in the higher latitudes, they were not greater than should be expected for the spring.

The averages for the three decades of April, 1916, varied considerably in many instances, and while in some localities the average pressure for the first decade was higher than that during the last two, in other regions the conditions were reversed. In the square between latitudes 60°–65°, longitudes 10°–15° W., the averages were as follows: First decade, 29.72 inches; second, 29.51 inches; third, 29.83 inches. In the square between latitudes 50°–55°, longitudes 10°–15° W., the figures were: First decade, 30.16 inches; second, 29.79 inches; third, 29.89 inches. In mid-ocean the decrease of pressure throughout the month was decided, and comparatively uniform, as shown by the averages for the square between latitudes 40°–45°, longitudes 35°–40°, which were as follows: First decade, 30.37 inches; second, 30.09 inches; third, 29.79 inches. The variation was not large in the waters adjacent to the American coast, and the figures for the square between latitudes 40°–45°, longitudes 65°–70°, were: First decade, 29.92 inches; second, 29.86 inches; third, 29.88 inches. Along the southern Gulf Coast the variation was also small, although the pressure for the middle decade was slightly higher than for the first and third, which were nearly the same.

GALES.

April usually shows a marked decrease in the number of gales as compared with March, and the month under discussion was no exception to the general rule. Over nearly the entire ocean the number of gales for April, 1916, was considerably below the normal, and in the vicinity of the steamer lanes they were not observed on more than four days in any one 5-degree square. The only exceptions occurred in the two squares immediately north of the Bermudas, where gales were reported on 6 days, a percentage of 20, while the normal for that locality is 13%. Between the 35th and 45th parallels all the winds of gale force occurred in the first 20 days of the month, none being reported later than the 19th. From April 1 to 7, a number of shallow depressions existed over the western division of the ocean, and from the 2d to the 13th a LOW of more decided character almost continuously occupied the region between Iceland and the Scandinavian Peninsula, although it was so far north that only the southern portion could be shown on the chart during the greater part of that period. On the 7th, a LOW (I on Chart IX) of slight intensity and attended by light to moderate winds, was central near Mobile, Ala., where the barometer read 29.70 inches. On the 8th the center of this LOW was near Hatteras, and the general conditions of the wind and weather had changed but little since the previous day. It moved in a northeasterly direction, increasing somewhat in intensity, and on the 9th, was near Nantucket, the barometer at that place reading 29.36 inches. A few vessels between the American coast and the 60th meridian reported southwesterly gales of from 40 to 55 miles an hour, while snow and fog were observed at different points along the coast, between New York and the Capes.

Continuing on its northeasterly course, the center of depression I was near Cape Ray, N. F., on the 10th, where the barometer had fallen to 29.20 inches. Moderate winds prevailed between the center and the 38th parallel, although in the territory between that line and the 34th parallel, and the 55th and 70th meridians, moderate to strong gales were encountered. On the same day the Icelandic LOW was unusually pronounced, the barometer reading at Reykavik being 29.03 inches. At the same time the Azores HIGH, with a crest of 30.70 inches, was central near latitude 40, longitude 30. The steep gradient between this high and the two lows caused heavy winds between the 50th and 55th parallels, and the 20th and 25th meridians, where several vessels encountered northwesterly gales of from 40 to 55 miles an hour, while the barometer read from 30 inches to 30.22 inches.

On Chart III (XLIV–48)—Tracks of Low Areas, in the April, 1916, MONTHLY WEATHER REVIEW, a LOW (II on our Chart IX) is shown that first appeared on the map in sourthen Alberta on the evening of the 10th. This disturbance moved across the country at a comparatively rapid rate, and, on the 14th, was central near New York. The depression was shallow in character, and only light to moderate winds were recorded in its vicinity. A smaller LOW of much greater intensity was central, on this date, about 3 degrees east of St. Johns, N. F., and observations showed moderate to strong gales over a large territory between the 38th and 47th parallels and the 37th and 57th meridians.

Of these LOWS the first (II on Chart IX) moved rapidly due eastward and on the 15th was central near latitude 40°N., longitude 62°W. It had increased considerably in intensity, as four vessels near the center recorded barometer readings of from 28.82 to 28.90 inches, while strong northwesterly gales raged over a large area extending as far south as the Bermudas. The disturbance continued its eastwardly movement at a diminished rate of translation, and on the 16th its center was near latitude 40°N., longitude 55°W., with a minimum barometer reading of 28.75 inches. It was then accompanied by

northerly gales between the center and the American coast. The disturbance then curved slightly toward the northeast, and on the 17th was near latitude 42°, longitude 50°; the barometer had risen to 29.25 inches and the storm area had decreased since the previous day, although a number of vessels between the 40th and 60th meridians encountered strong gales. This LOW moved but little between the 18th and the 22d, and conditions of wind and weather remained practically unchanged until the 20th, when the area began to fill in and the winds to decrease in force.

On the 22d fog was reported off the Banks of Newfoundland. On the 23d and 24th a well-developed LOW existed in the territory between the 35th and 43d parallels, and the 65th and 75th meridians, light to moderate winds prevailing over a considerable area, while fog was also reported by a number of vessels near the center. This disturbance moved rapidly toward the east, and on the 25th was central near latitude 42°, longitude 57°, the weather conditions remaining about the same as on the previous day. On the 25th another LOW had its center near latitude 48°, longitude 19°, while gales were reported from vessels within its limited area. From the 26th to the 28th there were no well-defined cyclonic disturbances on the chart, although a number of shallow depressions existed, accompanied by light to moderate winds, while fog prevailed in different localities in mid-ocean. On the 30th a LOW of limited extent was central about 5 degrees east of Hatteras, and easterly and northeasterly gales of from 40 to 60 miles an hour were reported by a number of vessels between the 70th meridian and the American coast.

TEMPERATURE.

The mean monthly temperature of the air over the ocean was, as a whole, slightly above the normal, the positive departures ranging from 1 to 5 degrees in mid-ocean and in the waters adjacent to the European coast. Along the American coast it was near the normal, while in West Indian waters and the Gulf of Mexico the departures ranged from 0 to −4 degrees. The departures at a number of Canadian and U. S. Weather Bureau stations on the Atlantic and Gulf coasts were as follows:

	°F		°F.
St. Johns, N. F.	+2.5	Nantucket, Mass.	−1.4
Sydney, C. B. I.	+1.2	Block Island, R. I.	−1.4
Halifax, N. S.	+2.8	New York, N. Y.	−1.0
Norfolk, Va.	+0.4	Key West, Fla.	−1.6
Hatteras, N. C.	−0.3	Tampa, Fla.	−1.6
Charleston, S. C.	+0.2	New Orleans, La.	−0.1
Eastport, Me.	+1.5	Galveston, Tex.	−1.7
Portland, Me.	−1.5	Corpus Christi, Tex.	−1.3
Boston, Mass.	+0.3		

The lowest temperature reported by any one vessel during the month was 33° and occurred on the 8th in the 5-degree square that includes the east coast of Labrador, while the highest temperature for the same square was 39° on a number of days. The usual seasonal rise in temperature during the month was not apparent in the higher latitudes, although appreciable in some localities south of the 40th parallel.

FOG.

Off the Banks of Newfoundland and in the waters adjacent to the American coast, the amount of fog was somewhat less than usual, while over the steamer lanes east of the 55th meridian it was near the normal.

SNOW AND HAIL.

There was a marked decrease in the number of days on which snow and hail were observed, as compared with March. Snow was reported on the 2d, 6th, and 19th on the eastern portion of the steamer routes, and on the 9th off the New England coast, while hail was observed on the 19th near latitude 52°, longitude 17° W.

Winds of 50 miles per hour (22.4 m./sec.), or over, April, 1917.

Station.	Date.	Velocity.	Direction.	Station.	Date.	Velocity.	Direction.
		Mis./hr.				*Mis./hr.*	
Block Island, R. I.	9	54	n.	New York, N. Y.	9	56	nw.
Buffalo, N. Y.	1	50	sw.	Do.	10	67	nw.
Canton, N. Y.	2	59	sw.	Norfolk, Va.	6	51	w.
Charlotte, N. C.	5	51	sw.	Do.	21	64	w.
Do.	30	60	sw.	Oklahoma, Okla.	3	50	s.
Dodge City, Kans.	17	60	se.	Pensacola, Fla.	5	63	sw.
Do.	18	52	s.	Do.	8	50	w.
El Paso, Tex.	18	51	nw.	Pittsburgh, Pa.	18	54	nw.
Do.	29	52	sw.	Do.	25	51	se.
Erie, Pa.	5	62	se.	Point Reyes			
Do.	25	55	se.	Light, Cal.	3	51	nw.
Evansville, Ind.	30	58	sw.	Do.	14	53	nw.
Fort Smith, Ark.	19	52	sw.	Do.	25	54	nw.
Do.	30	56	w.	Do.	26	61	nw.
Hatteras, N. C.	8	50	s.	Portland, Me.	4	63	nw.
Indianapolis, Ind.	5	52	nw.	Do.	10	56	nw.
Jacksonville, Fla.	8	50	sw.	Do.	11	53	nw.
Lexington, Ky.	20	54	sw.	Reno, Nev.	11	53	sw.
Louisville, Ky.	30	62	e.	St. Louis, Mo.	30	62	sw.
Lynchburg, Va.	21	59	w.	Sand Key, Fla.	13	56	nw.
Memphis, Tenn.	1	64	nw.	Sandusky, Ohio.	6	50	nw.
Mt. Tamalpais, Cal.	1	50	nw.	Sandy Hook, N. J.	5	55	e.
Do.	2	76	nw.	Do.	6	50	e.
Do.	3	56	nw.	Do.	7	50	nw.
Do.	7	50	nw.	Do.	21	50	nw.
Do.	15	57	nw.	Tatoosh Island,			
Do.	25	60	nw.	Wash.	1	50	sw.
Do.	26	53	nw.	Do.	21	52	s.
New York, N. Y.	7	68	nw.				